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The estimated cost-effectiveness of paediatric rotavirus vaccination in the Kingdom of Saudi Arabia

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Background: Rotavirus gastroenteritis is a major health burden in young children worldwide. This study investigates the cost-effectiveness of universal paediatric rotavirus vaccination with RIX4414, a two-dose human rotavirus vaccine, in the Kingdom of Saudi Arabia (KSA).

Methods: A Markov cohort model with a cycle time of one month is constructed in Microsoft Excel. A hypothetical birth cohort –estimated at 562 400 infants- is entered into the model and followed over average life expectancy with acute rotavirus events measured up to the age of 5 years. Probabilities, utility scores, and costs for hospitalisations, hospital-acquired rotavirus infection, medical consultations, emergency visits and deaths are taken from published sources, databases, and after consensus from experts obtaining minimum (min) and maximum (max) estimates. Costs and benefits are discounted at 3% per year and compared between vaccinated and unvaccinated cohorts from a societal perspective.

Results: Estimated number of rotavirus-related diarrhoea events per year is between 129 358 (min) and 168 728 (max). Total cost without vaccination is estimated between SAR 85 (min) and 192 million (max) per year, of which direct medical costs account between 77%-81% and indirect costs between 19%-23%. Vaccination (96% coverage) reduces the number of gastro-enteritis events with 65-66% between 43 609 -58 709 and number of medical visits from 112 486 - 140 600 per year to 14 745-18 900. Total cost, including cost of vaccination, in the vaccinated cohort is estimated at SAR 100 to 116 million per year, saving SAR 76 million or causing an extra cost of SAR 15 million per year compared with no vaccination, for a vaccine price per dose of SAR 75 + SAR 7 per administration. Compared with a 3 dose vaccine, cost savings will occur between SAR 6 to 9 million per birth cohort.

Conclusion: Paediatric vaccination against rotavirus with a 2 dose vaccine (RIX4414) would improve health outcomes in KSA and may save up to 5 SAR (best scenario) or being an extra cost of 1.16 SAR per child at risk (worst scenario), the latter still being very cost-effective.

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Investigation of malaria outbreak in Basti Mungwani, District Muzaffar Garh, October 2010

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Background: On 24 October 2010, EDO (Health) office received a call from local member council about two deaths due to high grade fever at Basti Mungwani. Four similar cases were also reported from the same area. A six-member team was sent to investigate the outbreak and recommend control measures. Basti Mangwani was flood-affected and consisted of about 42 houses with a population of 206.

Methods: A descriptive study was conducted from 24 to 30 October 2010. Based on the preliminary finding a case was defined as a resident of Basti Mangwani, regardless of age and sex, having fever with chills within October 18th to October 30th 2010. The patients fulfilling the case definition were enrolled by the house to house survey. Blood samples were taken for microscopy and rapid tests.

Results: There were 39 cases with a mean age of 17.5 years (range: 01-45). Females were 62%. Age group 1-20 years was most affected (n = 25). Besides fever and chills, vomiting was the present in 28% cases. All cases were confirmed on microscopy and 95% (n = 37) were positive on rapid test. *Plasmodium falciparum* was positive in 59% (n = 22) while rest were positive for *Plasmodium vivax*. The attack rate of malaria in this village was 18.9%. Spot map shows clustering of cases around a stagnant water pond in the centre of the village. Epi curve shows sudden outburst of cases on the 28th of October 2010.

Conclusion: Stagnant water pond was the major mosquito breeding site and the probable cause of the outbreak. Residual sprays, treatment of pond by larvicidals, provision of bed nets and prophylactic treatment with chloroquin were able to control the outbreak. No new cases were reported after October 30th 2010.

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Visceral leishmaniasis in North Khorasan province, north east of Iran

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Background: Visceral Leishmaniasis (VL) is a Zoonotic infection, is caused by *Leishmania infantum* in the Mediterranean area and

Middle East. The epidemiological studies have been shown that the disease occurs in different parts of Iran. The aims of this study were to determine the incidence rate and also most common clinical and laboratory manifestation of disease in Northern Khorasan province, north east of Iran.

Methods: The clinical files of the VL cases diagnosed during 1990–2010 checked to compute statistics on demographical and clinical details. Several data sources in this study were used such as all hospitals in the province and all documents in the province health center.

Results: We retrospectively evaluated 164 infants, children and adults with visceral leishmaniasis in the North Khorasan province during the study. The majority of the patients (73.5%) were from rural areas and 14.2% from suburban area. 52.4% of patients were male. The incidence of the disease in last decade, ranged from 1 to 2.5 per 100 000. Their age range was from 3 months to 66 years-old and majority of sufferers (85%) were under 10 years-old. The disease have been reported from different parts of the province, The diagnosis was confirmed in 93.8% of the patients by demonstration of leishmania amastigotes in bone marrow aspiration. The most common symptoms were fever (98.6%), splenomegaly (98.2%), anemia (94%), hepatomegaly (91.7%) and weakness (63.4%). All cases were treated with meglumine antimoniate and 6 patients (3.7%) died due to infection.

Conclusion: Our finding indicate that in recent years the number of cases increased and North Khorasan is the most important focus of VL in the east of the country.

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Determinants of human brucellosis in a region of Iran: a case-control study

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Background: Although contact with animals and their infected products are known as a main risk factors of brucellosis, but climate conditions, type and management aspects of animal husbandry and people nutritional behaviors on dairy products consumption in each region, are the factors affecting incidence pattern of the disease in each country. Human brucellosis is a notifiable disease in many countries, but official figures do not fully reflect the number of people infected each year and true incidence has been estimated to be between 10 and 25 times higher than what reported figures indicate. Therefore burden of this disease in Iran with about 25000 new cases in 2005 is very important from the view point of public health.

Methods: In this study in order to determine the risk factors of brucellosis, a multicenter case-control study was conducted in Qom in 2006.A total of 170 cases with serological diagnosis and physician confirm of brucellosis answered to questions. Control group was selected from patients without brucellosis. In all 170 parsons were selected as controls.

Results: Odds Ratio for all independent variables was computed and revealed that: occupational contact with animals, {OR = 5.4(3.4-8.9)}, consumption of at least one unpasteurized dairy products, {OR = 2.96(1.33-6.58)} were associated with the disease. Butter consumption was a risk factor, {OR = 6.5(3.3-12.7)}.Also rural residency was another determinant of disease ($p<.01$)

Conclusion: Public health education for people with livestock exposure and monitoring for consumption of pasteurized dairy products can be the main intervention in human population for control of brucellosis.

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Infectious diseases among Iraqi refugees in Lebanon

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Background: With the Iraqi war launched on 2003, more than 2 million Iraqi became refugees in neighboring countries, as Lebanon.

The characteristic of these refugees is that they are urban refugees from a middle income country, with satisfactory basic state of health.

Methods: Our study was conducted among Iraqi refugees in a Beirut suburb, and compared with studies.

Results: Infectious Diseases: The epidemiology of some infectious diseases in Iraqi refuges differs from other refugees group, the prevalence of abnormal chest radiograph (0.7%); culture confirmed TB (0%) hepatitis B (0.7%) and intestinal parasites was much lower than those in other recent refugee population resettled in the United States.

Chronic Diseases: Whereas the prevalence of infectious diseases is not problematic, the prevalence of chronic diseases represents the main public health problem for this population. Our study conducted among the Iraqi population over the age of 40 years old, in Beirut suburb, found out a prevalence of 51.25% for obesity, 44% dyslipidemia, 32.5% hypertension, 18% diabetes I, 7% diabetes II, and 17.5% for the combination of hypertension and diabetes, with a higher prevalence among the male population: 65% vs. 35% for hypertension, 60% vs. 40% diabetes and71 vs.29 for hypertension and diabetes.

The main reasons are the sedentary life style, obesity, the stress, high level of salt intake, smoking, genetics and family history.

Mental Health Diseases: High rates of mental health concerns have been documented in various refugee populations, with a high rate of post –traumatic stress disorder.

From observations based on distress indicators, more than 50% of the families in Lebanon presented at least 8 indicators. The cross analyses of these results shows that Iraqi refugees are undergoing a period of serious emotional and psychosocial threats that create widespread distress in living environment.